light. No doubt his picture of a return to the soil, of a vast multiplication of little homesteads with garden, cow, chickens and pigs, has its beauties in this day of exorbitant prices and popular frivolity. But is it not merely a utopian dream? So far as prices are concerned we need most of all an attack on the distributive system which trebles and quadruples prices between farmer and housekeeper. More important also than free land are capitalist monopolies, governmental incompetency, popular ignorance, and unsocialized conscience. We have an abundance of free land in New York, Pennsylvania, and New England; some of it for sale at prices that would not build the improvements on it. But the "back to the country movement" is slow in getting headway. The attractions of the city with its glitter, ephemeral luxuries and convenient vices prove irresistible. For centuries the country has been the seed-bed of the city, when will this current flow backwards? Not, indeed, as soon as the economic advantages of the country overcome the short hours, wages, and housing conveniences of the city. But when, in addition, there has been overcome the subtle satisfactions of the gregarious instinct and the varied nerve stimuli which makes one feel that he lives more—even if not longer—in the city. For, is it not idle to dream of an era when a people that through centuries has become biologically adapted to civilization will yearn for the simple life of the "old freedom?"

F. H. HANKINS.

World-Power and Evolution. By ELLSWORTH HUNTINGTON. New Haven: Yale University Press, 1919. 287 pp.

Every study from the original mind of the Research Associate in Geography in Yale University is certain to be interesting and stimulating. There is a breadth of view and sweep of scientific imagination in the present work that at times makes one fairly catch his mental breath. From the very opening pages one is taken on a voyage of discovery and exploration that does not for a moment lose its enchanting and breathless interest up to the close of the sixth appendix. To some extent to be sure the author draws upon his previous books and articles so that all is not new, but as a theory of biological and social evolution this book easily outranks any previous one by Professor Huntington. After careful reading of the evidence here gathered one is quite ready to assent to the author's statement that "One of the most interesting phases of the historical studies of the next generation is bound to be the conflict of opinion as to the effect of climatic changes upon history" (p. 241).

As *Civilization and Climate* was a study of the effects of physical environment on the course of history in relation to space so the present volume discusses these effects in relation to time. The arrangement of the evidence is logically cogent, but, throughout, the reasoning is largely a brilliant gossamer of theory woven upon a rather scanty supply of facts. This is not to say, however, that the theory may not be true in its main features, nor that the facts are not in themselves formidable. Moreover, the author displays a most commendable forbearance and a high degree of scientific caution in frequent use of the words "may" and "probable" and in warning the reader that the subject of the far-reaching effects of climate is only being opened up rather than finally settled.

Among the many important ideas in the book four outstanding ones are the dependence of health on climatic conditions; the close relation between climate, health and economic cycles; the great part played by climate in the evolution of physical and mental life; and the close parallel between the pulsations of climate and the ups and downs of Roman history.

It would seem that the author has clearly and brilliantly demonstrated his fundamental contention that health and consequently physical vigor, mental alertness and moral stability are greatly affected by atmospheric conditions, especially humidity and variability.

The contention that the economic cycle is determined primarily by climatic changes will, if fully established, constitute in its complete significance a revolutionary contribution to the materialistic interpretation of history. The popular theory has been that industrial depressions bring on widespread unemployment, resulting in undernourishment, which induces increased sickness and deaths. But the author finds that "The statistics from 1870 to the Great War show that a high death rate regularly *precedes* hard times, while a low death rate precedes prosperity. Health is a *cause* far more than an effect" (p. 29). Thus climatic factors lower vitality; this produces mental depression, reduces verve, courage and willingness to make new ventures, obliterates creative imagination, and brings the financial and industrial worlds face to face with a crisis.

This sounds plausible enough and is backed up by various other pieces of evidence. The critical reader cannot, however, fail to be struck with the possibilities of error in the statistical graphs. The author does not give us the original data so that it is impossible to trace his methods. He relies exclusively upon graphs for

his proof of interdependence without once calculating the coefficient of correlation. Deaths alone are apparently taken as a sufficient index of general health, though variations may have been due largely to contagious epidemics whose incidence may depend as much on contact as on debility.

Much more serious, however, is our ignorance of how the graphs of chapter II were made. For example there is a remarkable resemblance of the curves of prices and of health. But the curve of prices instead of indicating the absolute figures "shows the fluctuations from the level that would exist if certain permanent tendencies, such as the improvements in manufacturing and transportation, or the decline in the value of gold worked steadily without interference from other factors, such as the weather." No one can blink the fact that here is an opportunity for statistical juggling. The author's conclusion that the general level of prices follows the curve of health with a lag of four years is nothing short of startling in view of the generally accepted theory that the price level is dependent on the supply of and demand for goods on the one hand and of money and credit on the other.

One would also like to know more about the manner in which school attendance, New York bank clearings, general prices, national bank deposits and immigration were combined and averaged to make curve H. Moreover one finds somewhat disconcerting the author's conclusion that "when crops and health move in opposite directions," "the prosperity curve follows the health curve with no apparent regard for the crops" (p. 42). For health and crops seem both to depend on similar climatic conditions and in later chapters on Rome and Turkey much stress is laid on their concurrent variations.

There would seem to be no possible criticism of the principle involved in the elimination of the secular trend, for it is the fluctuations that disclose causal relations. And yet one cannot be oblivious of the fact that the general direction of our economic life as shown by the secular trend is steadily upward regardless of climatic or health variations. The author clearly implies that the secular trend is due to improvements in methods, growth of numbers, changes in the value of gold, etc. And yet in the later chapters, especially that on Rome, it is precisely the secular trend of national life that is dependent on climatic factors. Moreover the elimination of England, where economic crises have regularly occurred, cannot be said to strengthen the general case.

In any case the author has advanced a most interesting theory.

The subject-matter considered in the second chapter is so important that it is worthy more extended treatment. As it stands the author's a priori argument seems stronger than his statistical inductions which are bound to be unsatisfactory to the serious student until the reader is given an opportunity to check the work at every step.

The third main contention in this pregnant volume is that climatic variations have been profoundly important in the evolution of animal forms and nervous structure. For, it was precisely in the periods of great climatic change (controlled possibly by intensified solar activity) that the chief crises in evolution occurred. Moreover the development of new types of animals today, of new types of men, and of the higher forms of mental activity is likewise in each case dependent largely on climatic stimulus, primarily the effects of climatic crises in producing mutations.

Finally, there is an application of the fundamental theses to Rome and Turkey. Here as throughout the reasoning is brilliant and entrancing and the conclusions sufficiently startling. But the author does not forget that he is setting forth hypotheses rather than scientific finalities.

Here is a typical example of his reasoning. On the basis of comparison of rainfall in California (San Francisco and San Diego) and at Rome he draws the conclusion "that the curve of tree growth in California can safely be used as an approximate measure of the storminess in the Southern half of Italy" (p. 189). This permits him to picture (p. 188) the variations of rainfall affecting Roman history by the use of the width of annual rings of the great sequoia trees. He then parallels the ups and downs of that history from 450 B. C. with the ups and downs of rainfall. Now it must be submitted that it takes considerable faith in the author's hypotheses to admit the cogency of this argument. For, be it noted in the first place that the fundamental relationship upon which the entire reasoning depends is by no means a close one. The significant portion of this table follows.

	AVERAGE RAINFALL		AVERAGE GROWTH OF TREES
	A San Francisco and San Diego	B Rome	E THREE YEARS
I	8.3	10.7	3.02
II	4.5	10.6	3.00
III	3.4	9.8	2.98
IV	1.9	9.6	2.92

Can it be said that rainfall at Rome varies in the same manner as in California when a decrease of 3.8 inches in the average in California corresponds to a decrease of 0.1 inch in Rome, and a decrease of 1.1 inches corresponds to one of 0.8 inch? We are not in a position to calculate the coefficient of correlation for the entire fifty-five years represented in the table for we are not given the detailed data. Moreover we can only presume that the seven years of heaviest rainfall in California (I) were also the same, year for year, as those of heaviest rainfall in Rome.

Then the difference in the extent of growth on the average is in three cases only 0.02 of an inch. Is this a significant difference or is it only the result of chance variations? This question is not intended to imply at all that there is any doubt as to the positive correlation between lessened rainfall and lessened growth, but rather to indicate that in dealing with such slight differences as the basis of far-reaching conclusions, one ought to take every scientific precaution to see that correlations are high and probable errors low rather than the reverse. Finally one wonders whether, even if it were clearly shown that rainfall in California and at Rome are much the same today, one would be warranted in assuming that they would therefore necessarily have been the same 2000 or more years ago.

But in spite of criticisms one is glad to say that the book is worthy the attention of every serious student of history, economics and sociology. It is too intangible in spots and too sweeping to be thoroughly convincing, but it sketches out areas for scientific exploration that are of utmost interest and importance.

F. H. HANKINS.

ORIENTAL COMMENT

CHINA WANTS NO COMPROMISE

Sin Wan Pao (Shanghai): Mediation usually leads to a compromise. No compromise is, however, permissible in the case of the dispute between China and Japan. What China is fighting for is her sovereignty. China fights because she wishes to protect herself. It is not a quarrel with another nation for the possession of anything which does not belong to her. A compromise will necessarily affect the sovereignty of China because sovereignty cannot be shared in halves or divided in any way. The reported proposal of Japan to return the shell to China after retaining the kernel is a deliberate game of falsehood. Mediation is welcomed